

REMARKS

Entry of the foregoing, reexamination and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. § 1.112, and in light of the remarks which follow, are respectfully requested.

The above amendments and remarks which follow are directed to the issues raised in the Office communication mailed March 11, 2002.

With respect to the valency issue of the substituent R', applicants have further amended claims 60, 66 and 69 to delete any language describing the valency of R'. It is submitted that such language is unnecessary to a clear understanding of the scope of the claims.

Claim 72 has been amended to eliminate the issue concerning the value of n.

Claim 75 has been amended to delete the expression "simultaneous or successive" and to insert temperature conditions for the viscosity. Support for the temperature inserted may be found throughout the specification; e.g., page 4, line 26, page 19, line 21, page 20, line 26, etc.

With regard to claim 70, formula IV has been defined in the specification and claims. For example, note page 4 and claims 60 and 66. It is submitted that those of ordinary skill, to which the specification and claims are addressed, would have no difficulty in understanding the scope of claim 70.

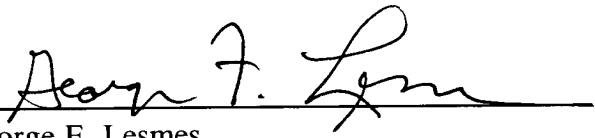
Claims 48-51 have been amended to eliminate "and/or" terminology.

Claim 62 has been amended to change "and" to --or-- in the last line thereof.

Applicants respectfully submit that all issues raised in the Official Actions mailed October 1, 2001 and March 11, 2002 have been addressed. Accordingly, an early and favorable action on the merits is solicited.

Respectfully submitted,

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Attachment to Supplemental Amendment Pursuant to 37 C.F.R. § 1.111

Marked-up Claims 48-51, 60, 62, 66, 69, 72 and 75

48. (Twice Amended) A process for the preparation of a low-viscosity polyfunctional isocyanate composition containing at least one compound selected from the group consisting of an isocyanate trimer containing an isocyanurate unit, a [and/or at least one] compound containing a biuret unit and mixtures thereof, and at least one isocyanate dimer containing a uretidinedione unit, from starting isocyanate monomers, in which the isocyanate groups are borne by sp^3 carbon atoms, and optionally from other monomers, this process comprising the following steps:

- i) heating the starting reaction medium, in the absence of dimerization catalyst, to a temperature of at least 80°C, and of not more than 200°C, for a period of less than 24 hours;
- ii) reacting the reaction product from step i) containing unreacted monomers with a (cyclo)condensation catalyst, under (cyclo)trimerization conditions;
- iii) removing the unreacted starting monomers from the reaction product from step ii); and
- iv) isolating the low-viscosity polyfunctional isocyanate composition comprising at least one isocyanate trimer and/or biuret compound and at least one isocyanate dimer.

49. (Twice Amended) A process for the preparation of a low-viscosity polyfunctional isocyanate composition containing at least one compound selected from the group consisting of an isocyanate trimer containing an isocyanurate unit, a [and/or at least one]

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compound containing a biuret unit and mixtures thereof, and at least one isocyanate dimer containing a uretidinedione unit, from starting isocyanate monomers, in which the isocyanate groups are borne by sp^3 carbon atoms, and optionally from other monomers, this process comprising the following steps:

- i) heating the starting reaction medium, in the absence of dimerization catalyst, to a temperature of at least 120°C , and of not more than 170°C , for a period of less than 5 hours;
- ii) reacting the reaction product from step i) containing unreacted monomers with a (cyclo)condensation catalyst, under (cyclo)trimerization conditions;
- iii) removing the unreacted starting monomers from the reaction product from step ii); and
- iv) isolating the low-viscosity polyfunctional isocyanate composition comprising at least one isocyanate trimer and/or biuret compound and at least one isocyanate dimer.

50. (Twice Amended) A process for the preparation of a low-viscosity polyfunctional isocyanate composition containing at least one compound selected from the group consisting of an isocyanate trimer containing an isocyanurate unit, a [and/or at least one] compound containing a biuret unit and mixtures thereof, and at least one isocyanate dimer containing a uretidinedione unit, from starting isocyanate monomers in which the

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isocyanate groups are borne by sp^3 carbon atoms, and optionally from other monomers, this process comprising the following steps:

- i) reacting the starting monomers with a (cyclo)trimerization or (cyclo)condensation catalyst under (cyclo)trimerization or (cyclo)condensation conditions;
- ii) heating the reaction product from step i) containing unreacted isocyanate monomers, in the absence of dimerization catalyst, to a temperature of at least 80°C, and of not more than 200°C, for a period of less than 24 hours;
- iii) removing the unreacted starting monomers from the reaction product from step ii); and
- iv) isolating the low-viscosity polyfunctional isocyanate composition comprising at least one isocyanate trimer and/or biuret compound and at least one isocyanate dimer.

51. (Twice Amended) A process for the preparation of a low-viscosity polyfunctional isocyanate composition containing at least one compound selected from the group consisting of an isocyanate trimer containing an isocyanurate unit, a [and/or at least one] compound containing a biuret unit and mixtures thereof, and at least one isocyanate dimer containing a uretidinedione unit, from starting isocyanate monomers in which the isocyanate groups are borne by sp^3 carbon atoms, and optionally from other monomers, this process comprising the following steps:

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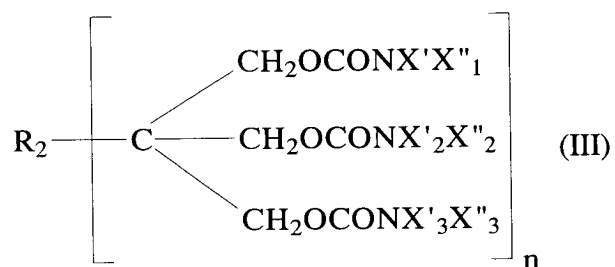
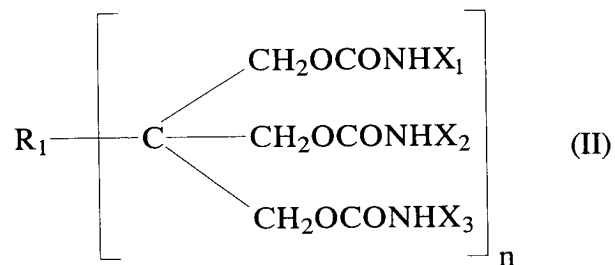
Marked-up Claims 48-51, 60, 62, 66, 69, 72 and 75

- i) reacting the starting monomers with a (cyclo)trimerization or (cyclo)condensation catalyst under (cyclo)trimerization or (cyclo)condensation conditions;
- ii) heating the reaction product from step i) containing unreacted isocyanate monomers, in the absence of dimerization catalyst, to a temperature of at least 120°C, and of not more than 170°C, for a period of less than 5 hours;
- iii) removing the unreacted starting monomers from the reaction product from step ii); and
- iv) isolating the low-viscosity polyfunctional isocyanate composition comprising at least one isocyanate trimer and/or biuret compound and at least one isocyanate dimer.

60. (Twice Amended) A process according to claim 59, comprising adding to the reaction medium containing the starting monomers a compound of general formula II and/or III below:

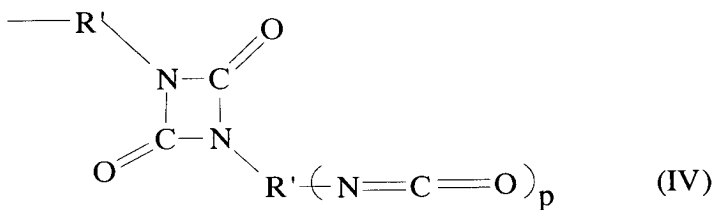
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in which

one or more of X_1 , X_2 and X_3 represents a group $R'-(N=C=O)_p$ in which R' is [a p-valent] an aliphatic group and p is an integer ranging from 0 to 5, the others representing, a group of formula

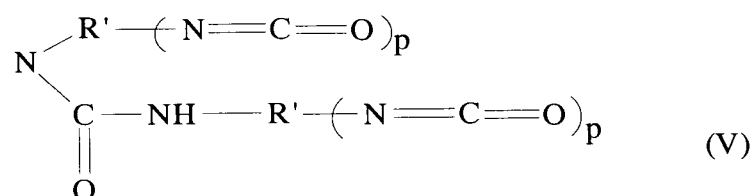


R_1 is a [mono-or n-valent] hydrocarbon group having 1 to 30 carbon atoms, in which the hydrocarbon chain optionally is interrupted by one or more chalcogen atoms and

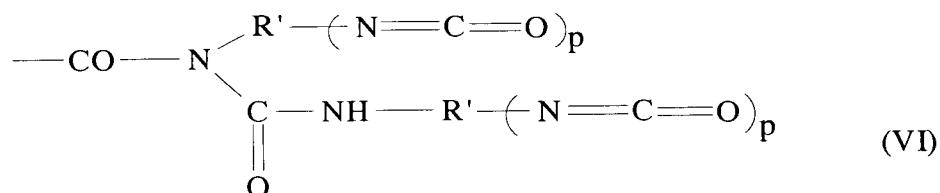
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optionally, bears 1 to 3 OH groups, with the OH groups optionally substituted, with a group CONX_1H , X_1 being as defined above, at least one of $\text{NX}'_1\text{X}''_1$, $\text{NX}'_2\text{X}''_2$ and $\text{NX}'_3\text{X}''_3$ represents the group,



the others representing a group NX_1H or $\text{NX}_1\text{-silyl}$ and R_2 being a [mono or n-valent] hydrocarbon group having 1 to 30 carbon atoms, in which the hydrocarbon chain optionally is interrupted by one or more chalcogen atoms and optionally, bears 1 to 3 OH groups, with the OH groups optionally substituted, with a group CONX_1H , or



and n is an integer ranging from 1 to 3.

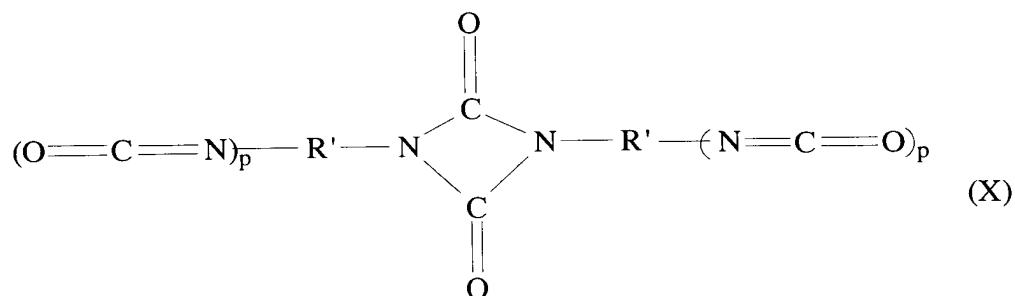
62. (Twice Amended) A process according to Claim 60, wherein said compound of general formula I is selected from pentaerythritol [and] or trimethylolpropane, and the compounds of general formulae II and III are selected from the corresponding pentaerythritol [and] or trimethylolpropane derivatives of general formula II [and/or] or III

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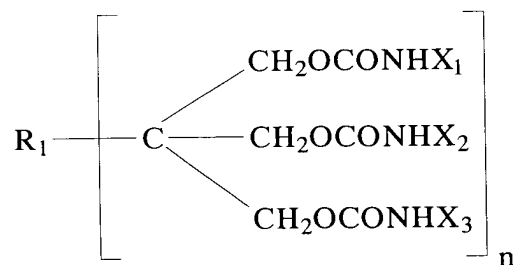
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or both II and III wherein R_1 [and/or] or R_2 or both R_1 and R_2 represents a group selected from CH_2OH [and] or CH_3CH_2 .

66. (Twice Amended) A composition comprising at least one compound of general formula X:



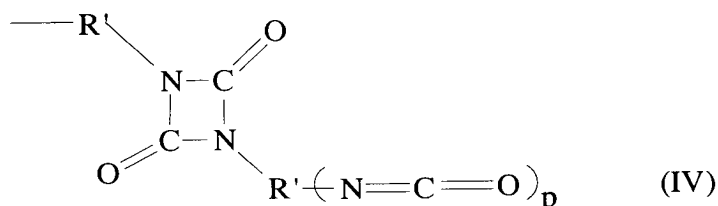
in which R' is [a p-valent] an aliphatic group and p is an integer ranging from 0 to 5, and at least one compound of general formula II:



in which one or more of X_1 , X_2 and X_3 represents a group $-\text{R}'-\text{N}=\text{C}=\text{O}$ and the others represent, a group

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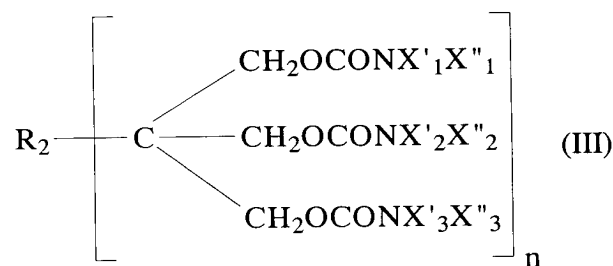
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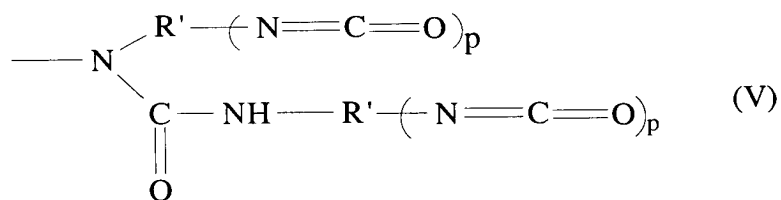
and R₁ is a [mono- or n-valent] hydrocarbon group having 1 to 30 carbon atoms, in which the hydrocarbon chain optionally is interrupted by one or more chalcogen atoms and optionally bears 1 to 3 OH group, with the OH groups optionally substituted with a group CONX₁H wherein X₁ represents R'(-N=C=O)_p

and n is an integer from 1 to 3;

and/or at least one compound of general formula III:



in which at least one of NX'₁X''₁, NX'₂X''₂ and NX'₃X''₃ represents the group,

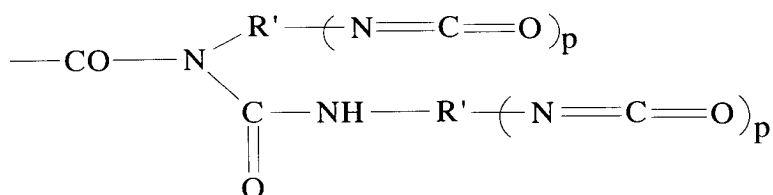


the others representing a group NX₁H and

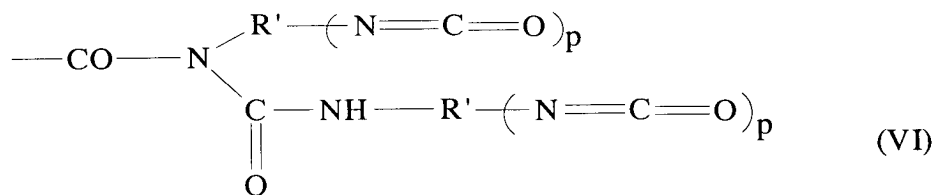
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R₂ being a [mono- or n-valent] hydrocarbon group having 1 to 30 carbon atoms, in which the hydrocarbon chain optionally is interrupted by one or more chalcogen atoms and optionally, bears 1 to 3 OH groups, with the OH groups substituted with a group CONX₁H or



and/or a biuret compound obtained from an isocyanate of general formula VI

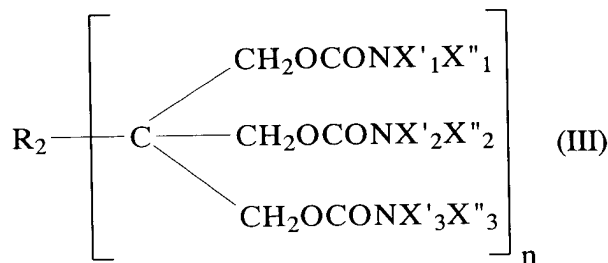


said composition further being free of dimerization catalyst selected from phosphine, aminopyridine, phosphoramidate, organometallic or tertiary amine.

69. (Twice Amended) A compound of general formula III

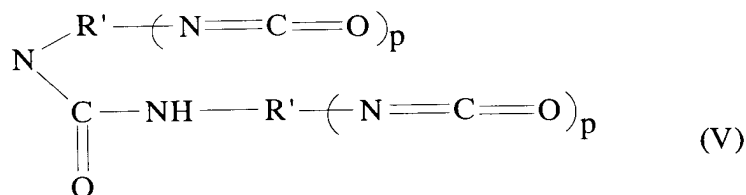
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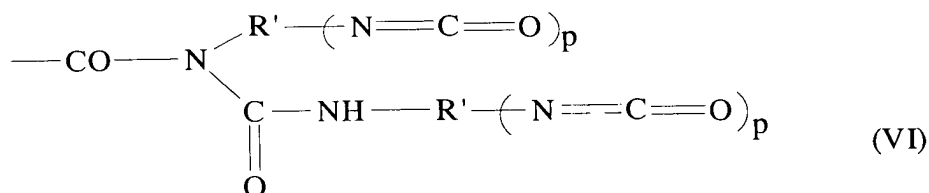


in which

at least one of $\text{NX}'_1\text{X}''_1$, $\text{NX}'_2\text{X}''_2$ and $\text{NX}'_3\text{X}''_3$ represents the group



in which R' is [a p-valent] an aliphatic group and p is an integer ranging from 0 to 5, the others representing a group NX_1H with X_1 representing a group $\text{R}' - (\text{N}=\text{C}=\text{O})_p$ and R_2 being a [mono- or p-valent] hydrocarbon group having 1 to 30 carbon atoms in which the hydrocarbon chain optionally is interrupted by one or more chalcogen atoms and optionally bears 1 to 3 OH groups, with the OH groups optionally substituted with a group CONX_1H ,
or



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and

n is an integer ranging from 1 to 3.

72. (Twice Amended) A compound according to Claim 69, wherein R' is [selected from a group $(CH_2)_n$ with n] an alkylene group ranging from 2 to 8 carbon atoms, optionally substituted with a hydrocarbon chain optionally bearing an isocyanate function, a norbornylmethylene group, a cyclohexylmethylene group or a 3,3,5-trimethylcyclohexyl methylene group.

75. (Twice Amended) A composition [for simultaneous or successive application,] comprising:

- at least one polyisocyanate composition according to Claim 65; and
- a polyester polyol having a viscosity of not greater than 10,000 mPa.s at 25°C.

and an Mw of between 250 and 8000.